Use division to find the polynomial part $q(x)$ and the remainder r when $p(x) = x^5 + 3x^3 - 2x + 4$ is divided by $x + 2$.

$$
\begin{array}{r|cccccc}
-2 & 1 & 0 & 3 & 0 & -2 & 4 \\
 & & -2 & 4 & -14 & 28 & -52 \\
\hline
 & 1 & -2 & \mathbf{7} & -14 & 26 & \mathbf{-48}
\end{array}
$$

$$q(x) = x^4 - 2x^3 + 7x^2 - 14x + 26 \qquad r = -48$$